

Brightwater Marine Outfall: Overview of Status and Potential for Impacts to Puget Sound

Jim Simmonds, King County Department of Natural Resources and Parks*

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King County is in the processing of designing and permitting the Brightwater wastewater treatment facilities, including a treatment plant, over 20 miles of conveyance tunnels, and a marine outfall in Puget Sound. These new facilities are intended to accommodate planned population growth in northern King County and southern Snohomish County through 2050. The marine outfall will discharge about one mile west of Point Wells in Puget Sound's Central Basin, at about 600 feet below mean lower low water level. The Brightwater treatment plant will use membrane bioreactor treatment technology to achieve high levels of solids and BOD removal. Peak flows beyond the MBR capacity will receive primary treatment plus disinfection before being blended with the MBR-treated effluent for discharge. The discharged effluent will achieve 300:1 to 1,821:1 dilution at the edge of the chronic mixing zone, depending on flow and oceanographic conditions. The effluent plume will trap below -30m MLLW under almost all flow and oceanographic conditions. No risks to aquatic life are predicted outside of the mixing zone. Operation of the Brightwater treatment facility is scheduled to begin in 2010.